

WHAT IS CLAIMED IS

1. A fuel tank for a motor vehicle, comprising
a fuel tank body having a wall defining the fuel tank body, the wall having a closable opening therethrough,
a reservoir having first and second ends and a boundary wall and being of smaller size than the tank body and disposed therein and inserted into the tank body through the opening in the wall thereof,
means connecting the reservoir to the tank body, and
firm components delimiting the reservoir at its first and second ends,
the reservoir being deformable at least at portions of the boundary wall thereof in such a way that after ^{the reservoir} it has been at least partially introduced into the tank body ^{the reservoir} it experiences a change in shape resulting in an increase in its volume within the tank body and a change in its cross-section such that the largest cross-section of the reservoir in its operative position is larger than the cross-section of the opening in the tank body wall available for insertion of the reservoir, and the deformable wall portions of the reservoir being between ^{the reservoir} the ~~said~~ components at the ends of the reservoir.

2. A tank as set forth in claim 1

wherein the reservoir is of a round cross-section.

3. A tank as set forth in claim 1

wherein the reservoir defines a closed space having walls which only have apertures therethrough for the controlled feed and discharge of fuel.

4. A tank as set forth in claim 1

wherein the tank body has lower and upper wall portions, and

wherein the reservoir has walls laterally defining same and extending substantially between lower and upper wall portions of the tank body.

5. A tank as set forth in claim 1

wherein the component defining the reservoir at the end thereof which in the installed position is the upper end serves at the same time as a closure means for closing said opening in said tank body wall.

6. A tank as set forth in claim 1

wherein the reservoir is of an axially elongate configuration, and wherein at least a part of the change in shape of the reservoir which results in the increase in volume thereof is effected by a reduction in the axial extent of the reservoir.

7. A fuel as set forth in claim 1

wherein the reservoir includes a means supporting the deformable wall portion of the reservoir.

8. A tank as set forth in claim 1

a wherein at least portions of the ~~side~~ walls of the reservoir are deformable under stress during insertion of the reservoir into the tank body.

9. A tank as set forth in claim 7

wherein said support means is deformable under stress during insertion of the reservoir into the tank body.

10. A tank as set forth in claim 1

wherein the parts of the reservoir which are deformable under stress experience a relief of stress when the volume of the reservoir increases within the tank body.

11. A tank as set forth in claim 1

R wherein at least portions of the ~~side~~ walls of the tank body are deformed under stress in the operative position in the tank body.

12. A tank as set forth in claim 7

wherein said support means is deformed under stress in the operative position of the reservoir in the tank body.

13. A tank as set forth in claim 6

wherein the axial extent of the reservoir after the reduction of the axial extent thereof approximately corresponds to the spacing between a closure element closing said opening in said tank body wall and the tank body wall portion disposed in opposite relationship to said closure element.

14. A tank as set forth in claim 6

wherein the tank body has first and second oppositely disposed wall portions, and

wherein the reduction in the axial extent of the reservoir results in stressing in parts thereof, said stressing being used to cause bracing of the reservoir between first and second oppositely disposed wall portions of the tank body.

15. A tank as set forth in claim 1

wherein the increase in volume of the reservoir occurs under the effect of fuel therein.

16. A tank as set forth in claim 1

wherein the deformable wall portion of the reservoir in its initial condition before the change in shape thereof is provided with fold means adapted to at least partially open in the course of said change in shape of the deformable wall portion.

17. A tank as set forth in claim 1

wherein the deformable wall portion of the reservoir comprises an elastically deformable material.

18. A tank as set forth in claim 1

wherein the deformable wall portion of the reservoir is pre-formed in such a way that an axial loading on the reservoir results in deformation thereof such as to cause an increase in the volume thereof.

19. A tank as set forth in claim 7

wherein after insertion of the reservoir into the tank body said support means also undergoes a change in shape corresponding to the change in shape of the deformable wall portion of the reservoir.

20. A tank as set forth in claim 7

wherein the support means is elastically deformable and is pre-formed in such a way that a reduction in the axial dimension of the reservoir results in deformation of the support means in the fashion of an increase in the volume of the reservoir.

21. A tank as set forth in claim 1

wherein the reservoir includes a hollow body having first and second substantially frustoconical portions including walls provided with fold means, and

wherein said frustoconical portions have largest-diameter regions thereof facing towards each other and joined together thereat.

22. A tank as set forth in claim 21

wherein said fold means of a said portion are arranged displaced relative to the fold means of the respective other said portion by half the extent of a fold means in the peripheral direction of the reservoir.

23. A tank as set forth in claim 22

wherein the depth of said fold means increases along the extent thereof from the respective end of the reservoir in a direction towards said largest-diameter region.

24. A tank as set forth in claim 21

wherein the reservoir has a longitudinal axis and includes a portion which extends in the direction of the longitudinal axis of the reservoir and in which said folds of the substantially frustoconical portions are in mutually overlapping relationship, and

wherein the outer apex lines of the fold means of a respective one said substantially frustoconical portion go into the inner apex lines of the fold means of the respective other substantially frustoconical portion.

25. A tank as set forth in claim 21

wherein the hollow body of the reservoir is made from plastic material by blow molding and the finished hollow body of a substantially bellows shape is of a configuration corresponding to the functional configuration of the reservoir in the tank body.

26. A tank as set forth in claim 1 and further including
a filling pipe having an outflow end,

a motor-driven fuel pump disposed within the reservoir.

wherein the reservoir has an intake opening and an upper region having at least one overflow opening.

wherein the outflow end of the filling pipe is connected to the intake opening of the reservoir,

the arrangement being such that fuel can flow through the at least one overflow opening out of the reservoir into the region of the tank body surrounding the reservoir.

27. A tank as set forth in claim 26

wherein the reservoir has first and second ends and rigid components at respective ones of said ends, and wherein the intake opening is disposed at one of said components.

28. A tank as set forth in claim 26

wherein the reservoir has a bottom portion, and further including

a chamber provided at the bottom portion of the reservoir outside same and in sealed relationship with respect thereto.

a jet pump disposed within said chamber and having a propulsion nozzle.

a return conduit connected to said nozzle for returning at least a part of the fuel delivered by the motor-driven pump.

a catch nozzle disposed in operative opposite relationship to the propulsion nozzle, and

an overflow conduit connected to the catch nozzle and extending upwardly into the reservoir.

29. A tank as set forth in claim 1 and further including a delivery unit.

wherein the tank body at its wall portion in opposite relationship to said opening includes a mounting for said delivery unit.

30. A tank as set forth in claim 1 and further including

means for sealing off the reservoir with respect to the interior of the tank body surrounding same such that there is in the reservoir always a defined minimum amount of fuel and the fuel level can only fall below that minimum amount when the volume of the tank body surrounding the reservoir is substantially empty.

31. A fuel tank for a motor vehicle, comprising

a fuel tank body having a wall defining the tank body, the wall having a closable opening therethrough.

a reservoir having first and second ends and a boundary wall and being of smaller size than the tank body and disposed therein inserted into the tank body through the opening in the wall thereof.

first and second substantially non-deformable portions at respective ones of the ends of the reservoir.

means connecting the reservoir to the tank body.

the reservoir being deformable at least at portions of the boundary wall thereof between said first and second portions whereby after ~~it~~ ^{the reservoir} has been at least partially introduced into the tank body the reservoir can experience a configurational change such that the largest cross-section of the reservoir in its operative position within the tank body is larger than the opening in the tank body wall.

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